CLAIMS

1. A zoom lens comprising lenses arranged in order from an object side into a first lens group having positive refractive power, a second lens group having negative refractive power, a third lens group having positive refractive power, a fourth lens group having positive refractive power, and a fifth lens group having positive refractive power, the zoom lens being characterized in that:

in the event of a shift of a lens position mode from a wide angle end mode to a telephoto end mode, the first lens group is fixed along an optical axis direction, the second lens group moves to an image side, the third lens group is fixed along the optical axis direction, the fourth lens group compensates for a fluctuation in an image plane position due to the shift of the second lens group, and concurrently moves along the optical axis direction in a close-distance focusing event, and the fifth lens group is fixed along the optical axis direction;

an aperture diaphragm is disposed in the vicinity of the third lens group;

the fifth lens group includes a negative sub lens group having negative refractive power and a positive sub lens group having a positive refractive power, wherein the image can be shifted in conjunction with a shift of the

positive sub lens group in a direction substantially perpendicular to the optical axis; and

the zoom lens satisfies conditional equation (1):

$$0.6<f5p/Da<1.4 \quad (1)$$

where,

f5p = focal distance of the positive sub lens group disposed in the fifth lens group; and

Da = length extending along the optical axis to a paraxial image position from a most-imagewise surface of the positive sub lens group disposed in the fifth lens group.

2. The zoom lens according to claim 1, characterized by satisfying conditional equation (2):

$$0.5<f5p/Db<1.3 \quad (2)$$

where,

Db = length extending along the optical axis to the aperture diaphragm from a most-object-side surface of the positive sub lens group disposed in the fifth lens group.

3. The zoom lens according to claim 1, characterized by satisfying conditional equation (3):

$$0.3<|f5n|/ft<0.9$$

where,

f5n = focal distance of the negative sub lens group disposed in the fifth lens group; and

ft = focal distance of a total lens system in the telephoto end mode.

4. The zoom lens according to claim 2, characterized by satisfying conditional equation (3):

$$0.3<|f5n|/ft<0.9 \qquad (3)$$

5. The zoom lens according to claim 1, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

where,

C5p = curvature (reciprocal of a radius of the curvature) of the most-image-side lens surface of the positive sub lens group disposed in the fifth lens group.

6. The zoom lens according to claim 2, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

7. The zoom lens according to claim 3, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

8. The zoom lens according to claim 4, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

9. An imaging apparatus comprising a zoom lens and an imaging device that converts an optical image formed through the zoom lens to an electric signal, the imaging apparatus being characterized in that:

the zoom lens includes lenses arranged in order from an object side into a first lens group having positive refractive power, a second lens group having negative refractive power, a third lens group having positive refractive power, a fourth lens group having positive refractive power, and a fifth lens group having positive

refractive power, the zoom lens being characterized in that:

in the event of a shift of a lens position mode from a wide angle end mode to a telephoto end mode, the first lens group is fixed along an optical axis direction, the second lens group moves to an image side, the third lens group is fixed along the optical axis direction, the fourth lens group compensates for a fluctuation in an image plane position due to the shift of the second lens group, and concurrently moves along the optical axis direction in a close-distance focusing event, and the fifth lens group is fixed along the optical axis direction;

an aperture diaphragm is disposed in the vicinity of the third lens group;

the fifth lens group includes a negative sub lens group having negative refractive power and a positive sub lens group having a positive refractive power, wherein the image can be shifted in conjunction with a shift of the positive sub lens group in a direction substantially perpendicular to the optical axis; and

the zoom lens satisfies conditional equation (1):

$$0.6<f5p/Da<1.4 \quad (1)$$

where,

f5p = focal distance of the positive sub lens group disposed in the fifth lens group; and

Da = length extending along the optical axis to a paraxial image position from a most-imagewise surface of

the positive sub lens group disposed in the fifth lens group.

10. The imaging apparatus according to claim 9, characterized by satisfying conditional equation (2):

$$0.5<f5p/Db<1.3 \quad (2)$$

where,

Db = length extending along the optical axis to the aperture diaphragm from a most-object-side surface of the positive sub lens group disposed in the fifth lens group.

11. The imaging apparatus according to claim 9, characterized by satisfying conditional equation (3):

$$0.3<|f5n|/ft<0.9$$

where,

f5n = focal distance of the negative sub lens group disposed in the fifth lens group; and

ft = focal distance of a total lens system in the telephoto end mode.

12. The imaging apparatus according to claim 10, characterized by satisfying conditional equation (3):

$$0.3<|f5n|/ft<0.9 \quad (3)$$

13. The imaging apparatus according to claim 9, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

where,

C5p = curvature (reciprocal of a radius of the curvature) of the most-image-side lens surface of the positive sub lens group disposed in the fifth lens group.

14. The imaging apparatus according to claim 10, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

15. The imaging apparatus according to claim 11, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$

16. The imaging apparatus according to claim 12, characterized in that:

the positive sub lens group disposed in the fifth lens group includes at least one positive lens and one negative lens; and

the zoom lens satisfies conditional equation (4):

$$-5<C5p\cdot ft<-2 \qquad (4)$$